SECTION 139

STRUCTURAL AND RIVET STEEL, RIVETS, BOLTS, PINS, AND ANCHOR BOLTS

139.1 GENERAL

All steel, the class of which is not definitely designated herein, in the Supplementary Specifications, or on the plans, shall be structural steel and shall conform to the requirements of ASTM A 36.

139.2 REFERENCES

139.2.1 ASTM

A 6	A 490
A 36	A 502
A 242	A 572
A 307	A 668
A 325	E 10

139.3 REPORT OF TESTS

Before fabrication, the CONTRACTOR shall furnish to the ENGINEER a report in duplicate certified by the mill of the tests for each melt of steel or iron from which the material is to be fabricated. These tests shall include the chemical and physical tests required by the ASTM specifications for the materials.

139.4 ADDITIONAL TESTS

139.4.1 The ENGINEER reserves the right to require additional mill and laboratory tests to assure compliance with ASTM requirements.

139.4.2 By "identifiable stock" is meant material for which authentic records of the chemical and physical properties are available.

139.4.3 Test specimens shall be furnished, cut, and machined in accordance with ASTM specifications for the material to be tested, as referred to herein. Test specimens shall be furnished and machined at the CONTRACTOR's expense.

139.5 MILL TOLERANCES

Rolling and cutting tolerances, permissible variations in weight and dimensions, defects and imperfections shall not exceed the limits for structural steel contained in ASTM A 6.

139.6 STOCK MATERIAL

When the CONTRACTOR proposes to use material already in stock, he shall notify the ENGINEER of such intention at least ten days in advance of beginning fabrication to permit sampling and testing.

139.7 STRUCTURAL STEEL:

139.7.1 STOCK MATERIALS: The CONTRACTOR shall select the material he wishes to use from stock and place it in a location apart from other stock material and accessible for inspecting and sampling. The CONTRACTOR shall select the material from as few heat numbers as possible and shall furnish certified mill test reports on each of the heat numbers. Two samples shall be taken by a representative of the ENGINEER from each heat number, one for the tension test and one for the cold bend test. If the heat numbers cannot be identified, the representative of the ENGINEER may, at his discretion, select random test specimens from the unidentifiable heats. The number of such test specimens shall be entirely within the discretion of the representative of the ENGINEER.

139.7.2 HIGH-STRENGTH LOW-ALLOY STRUCTURAL STEEL: The material shall conform to the requirements of ASTM M 242, A 572 (Grades 42, 50, 60, or 65).

139.7.3 COPPER BEARING STRUCTURAL STEEL: Copper bearing structural steel shall conform to the requirements of ASTM A 36 or as specified.

139.8 RIVETS

139.8.1 STOCK MATERIAL:

139.8.1.1 Rivets taken from identifiable stock shall be accepted by the ENGINEER in accordance with Subsection 139.4.2.

139.8.1.2 Rivets from unidentifiable stock (for which authentic records of the chemical and physical properties are not available) shall not be used except where shown on the shop drawing. See Subsection 139.6.

139.8.2 HIGH-STRENGTH STRUCTURAL RIVET STEEL:

The material shall conform to the requirements of ASTM A 502.

139.8.3 STRUCTURAL RIVET STEEL: The material shall conform to the requirements of ASTM A 502, except that the test

specimen shall be bent upon itself when performing the bend test.

139.9 BOLTS

139.9.1 UNFINISHED BOLTS

139.9.1.1 The bolts shall have square heads and square nuts unless otherwise specified. The bolts shall be long enough to extend entirely through the nut but not more than 1/4 inch beyond. Washers shall not be furnished unless specified.

139.9.1.2 Steel bolts shall conform to the requirements of ASTM A 307, except that steel manufactured by the acid-Bessemer process shall not be used.

139.9.2 HIGH-STRENGTH BOLTS: High Strength bolts shall conform to the provisions of the specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings of the American Institute of Steel Construction (ASTM A 325 or A 490).

139.10 ANCHOR BOLTS

Anchor bolts shall be manufactured from steel conforming to ASTM A 36 or A 307.

139.11 MILD-STEEL FORGINGS FOR STRUCTURAL PURPOSES

Steel forgings shall be made from steel of forging quality and shall conform to the requirements of ASTM A 668. They shall be Class C forgings with a maximum carbon content of 0.35 percent and shall be given a thorough annealing. The metal shall have a minimum Brinell hardness number of 130 and a maximum of 190 when tested in accordance with ASTM Test E-10.

139.12 MEASUREMENT AND PAYMENT

Structural and rivet steel, rivets, bolts, pins, and anchor bolts will be considered subsidiary items to major items of construction as listed in the specifications or required on the plans. No separate measurement or payment will be made.